VLA203-121R

NON-ISOLATED TYPE DC-DC CONVERTER

VLA203-121R

DESCRIPTION

The VLA203-121 is a DC-DC converter which can input wide range voltage.
The over-current protection circuit is built-in and it is the best for on-board power supplies, such as industrial equipment and battery power equipment.

FEATURES

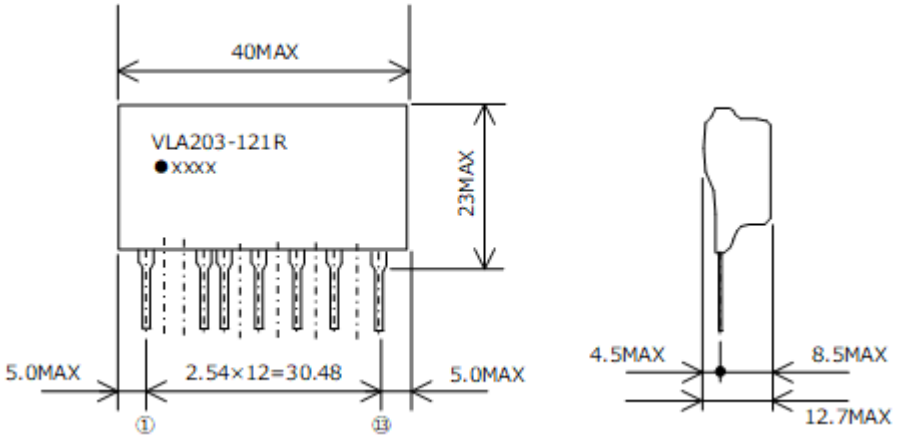
- Wide input voltage range: 26 to 120V DC
- Output: +12.6V, 150mA (output power : 1.8W)
- Thin-profile and lightweight design
- Built-in over-current protection circuit

APPLICATIONS

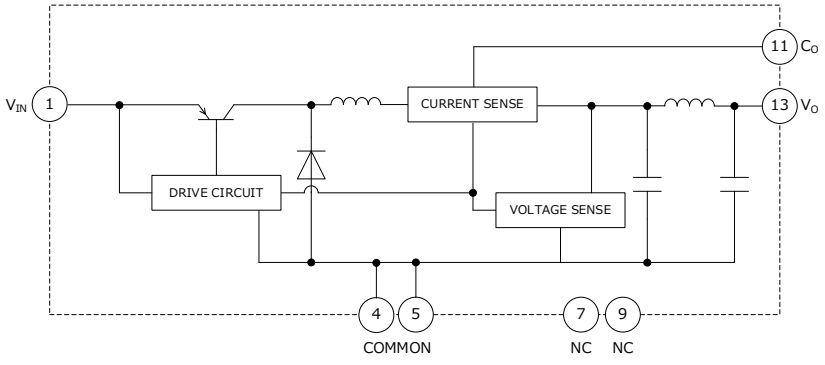
On-board power supplies, such as industrial equipment and battery power equipment.

OUTLINE DRAWING

Dimensions : mm



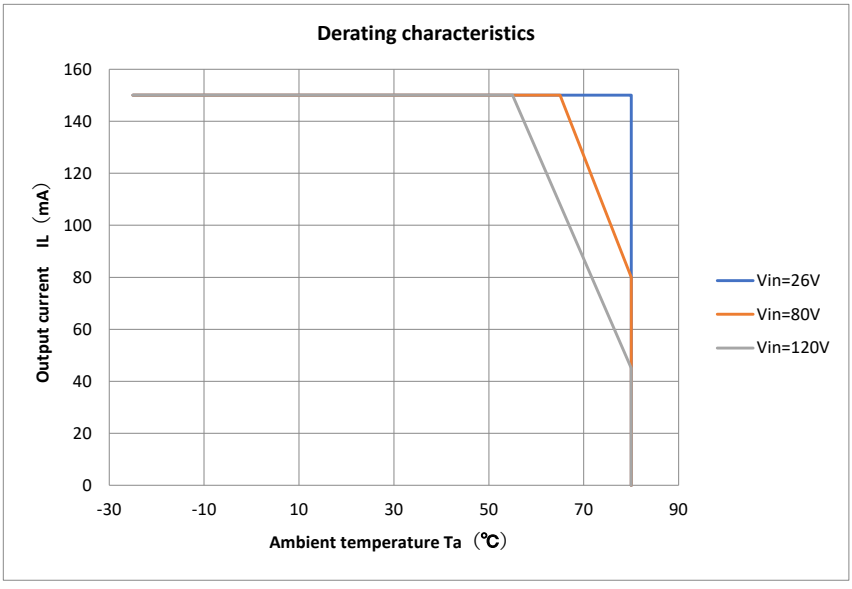
BLOCK DIAGRAM



MAXIMUM RATINGS (unless otherwise noted、T_{opr}=25 ℃)

Symbol	Parameter	Conditions	Ratings	Unit
V_{IN}	Input voltage	–	120	V
I_O	Output current	–	150	mA
T_{opr}	Operating temperature	No condensation ※1	−25～+80	℃
T_{stg}	Storage temperature	No condensation	−30～+85	℃

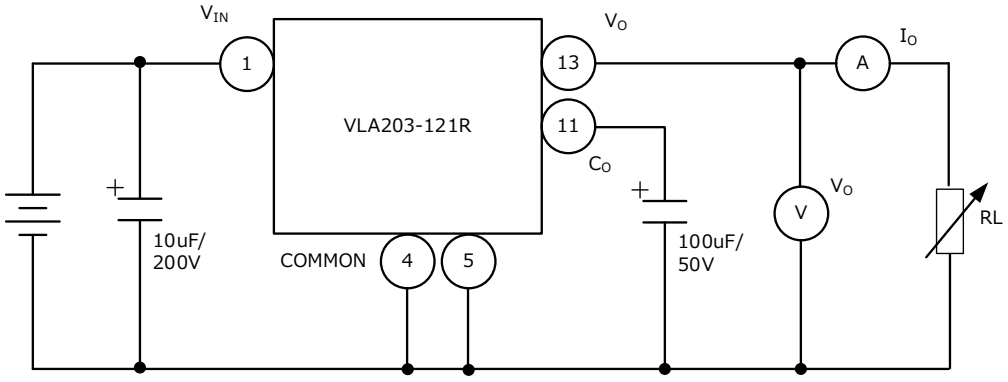
※1 There is the necessity for derating with circumference temperature.



ELECTRICAL CHARACTERISTICS (unless otherwise noted, T_{opr}=25℃,V_{IN}=80V)

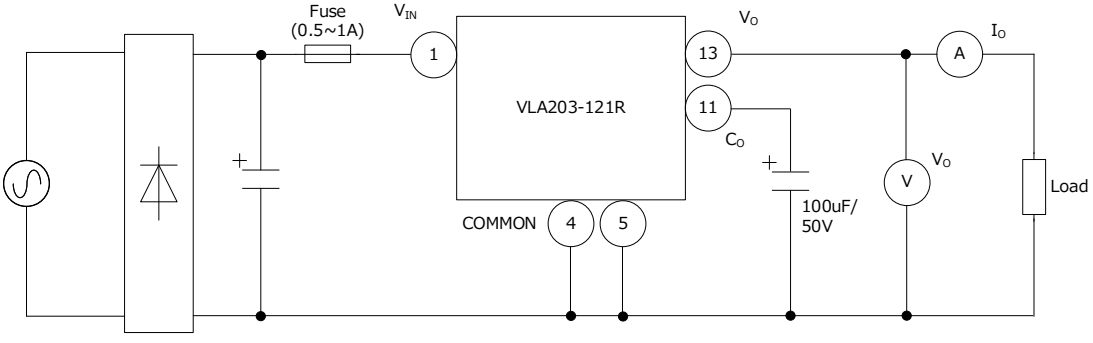
Symbol	Parameter	Test Conditions	Limits			Unit
			MIM	TYP	MAX	
V_{IN}	Input voltage	Recommended range	26	80	120	V
V_O	Output voltage	I_O=0～150mA	12.0	12.6	13.2	V
Reg-I	Input Regulation	V_{IN}=26～120V,I_O=300mA	–	50	150	mV
Reg-L	Load Regulation	V_{IN}=80V,Io=0～150mA	–	70	200	mV
V_{P-P}	Ripple voltage	V_{IN}=80V,I_O=150mA	–	60	120	mV
η	Efficiency	V_{IN}=80V,I_O=150mA	58	65	–	%

TEST CIRCUIT DIAGRAM

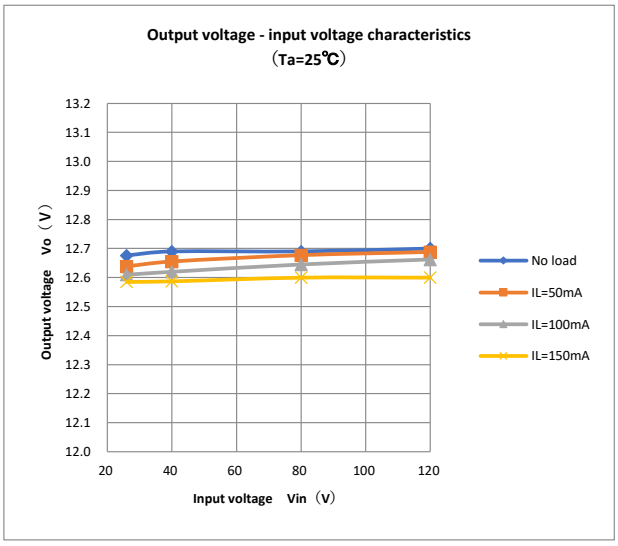


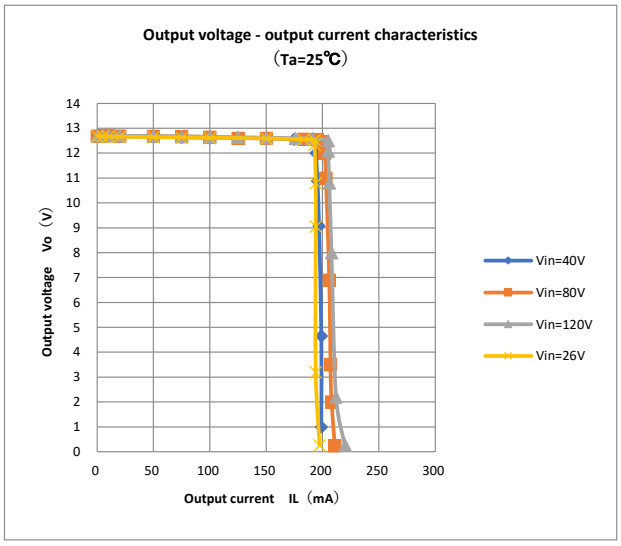
※Use low impedance electrolytic capacitors.

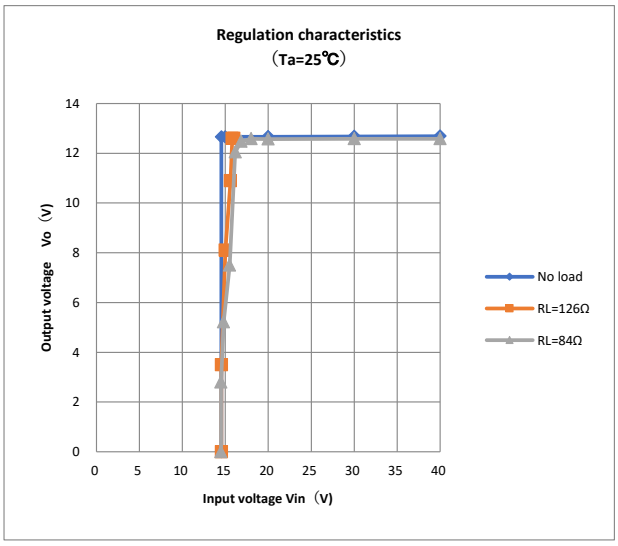
APPLICATION EXAMPLE

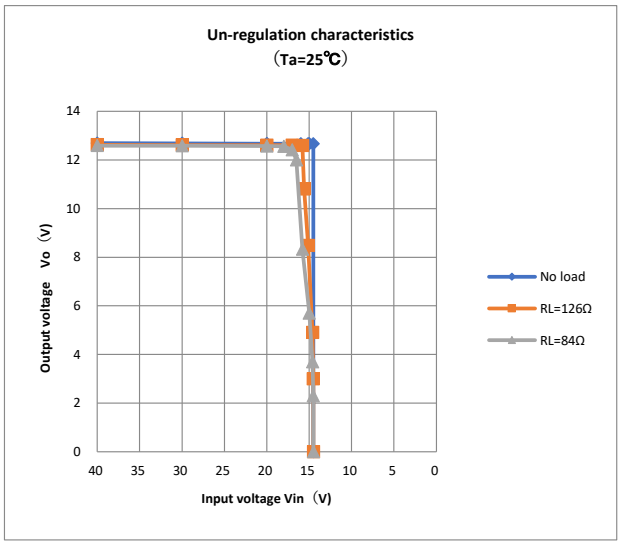


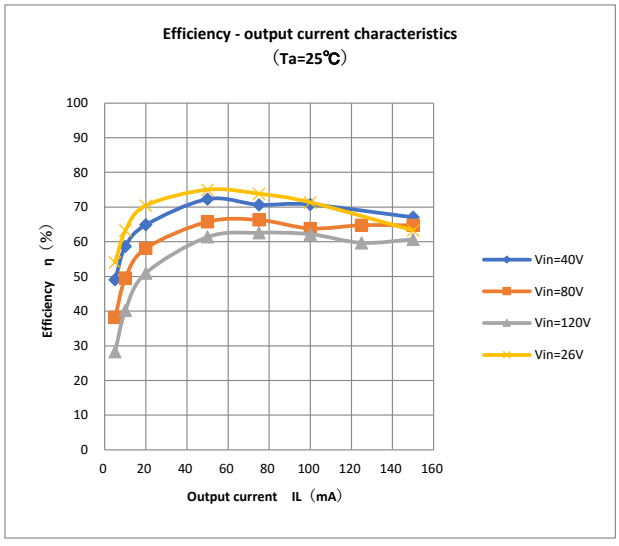
TYPICAL CHARACTERISTICS (unless otherwise noted, T_{opr}=25 ℃)

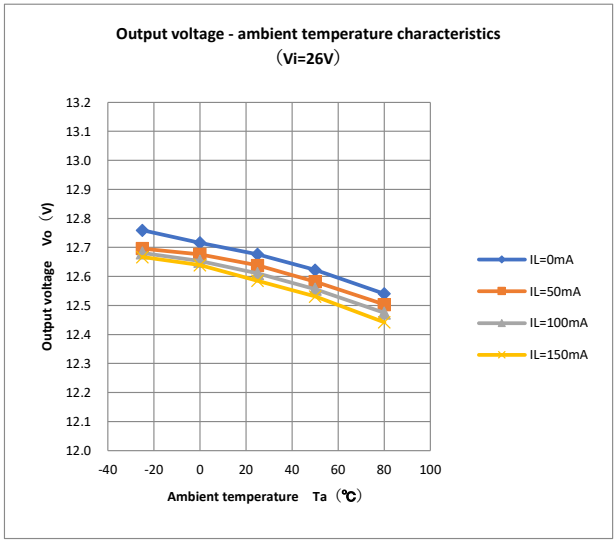


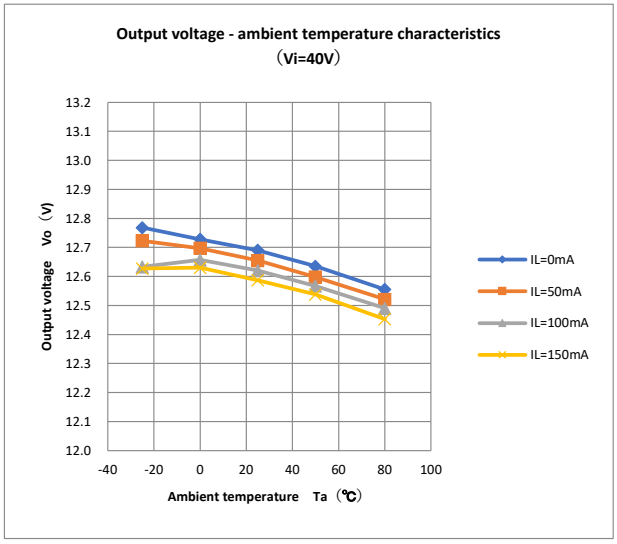


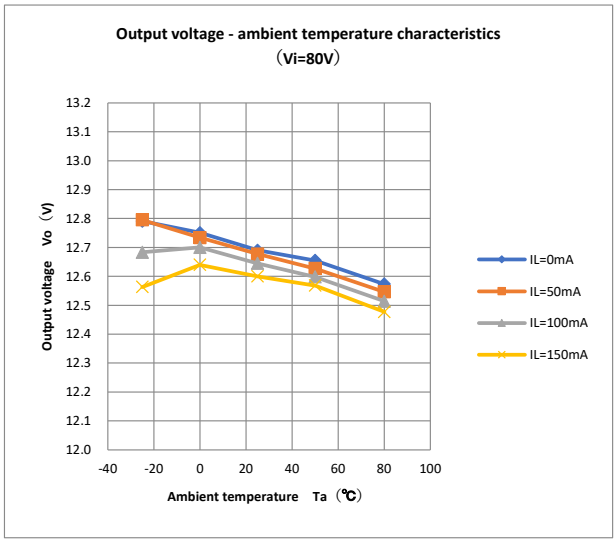


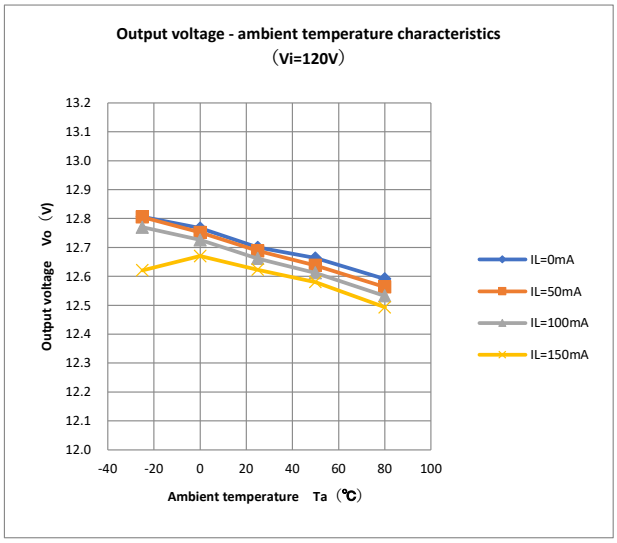





Output voltage - ambient temperature characteristics
(Vi=26V)
Output voltage Vo (V)
13.2
13.1
13.0
12.9
12.8
12.7
12.6
12.5
12.4
12.3
12.2
12.1
12.0
-40
-20
0
20
40
60
80
100
Ambient temperature Ta (℃)
IL=0mA
IL=50mA
IL=100mA
IL=150mA


Output voltage - ambient temperature characteristics
(Vi=40V)
Output voltage Vo (V)
13.2
13.1
13.0
12.9
12.8
12.7
12.6
12.5
12.4
12.3
12.2
12.1
12.0
-40
-20
0
20
40
60
80
100
Ambient temperature Ta (℃)
IL=0mA
IL=50mA
IL=100mA
IL=150mA


Output voltage - ambient temperature characteristics
(Vi=80V)
Output voltage Vo (V)
13.2
13.1
13.0
12.9
12.8
12.7
12.6
12.5
12.4
12.3
12.2
12.1
12.0
-40
-20
0
20
40
60
80
100
Ambient temperature Ta (℃)
IL=0mA
IL=50mA
IL=100mA
IL=150mA


Output voltage - ambient temperature characteristics
(Vi=120V)
Output voltage Vo (V)
13.2
13.1
13.0
12.9
12.8
12.7
12.6
12.5
12.4
12.3
12.2
12.1
12.0
-40
-20
0
20
40
60
80
100
Ambient temperature Ta (℃)
IL=0mA
IL=50mA
IL=100mA
IL=150mA

FOR SAFETY USING

Great detail and careful attention are given to the production activity of Hics, such as the development, the quality of production, and in it's reliability. However the reliability of Hics depends not only on their own factors but also in their condition of usage.
When handling Hics, please note the following cautions.

CAUTIONS	
Packing	The materials used in packing Hics can only withstand normal external conditions. When exposed to outside shocks, rain and certain environmental contaminators, the packing materials will deteriorates. Please take care in handling.
Carrying	1) Don't stack boxes too high. Avoid placing heavy materials on boxes. 2) Boxes must be positioned correctly during transportation to avoid breakage. 3) Don't throw or drop boxes. 4) Keep boxes dry. Avoid rain or snow. 5) Minimal vibration and shock during transportation is desirable.
Storage	When storing Hics, please observe the following notices or possible deterioration of their electrical characteristics, risk of solderability, and external damage may occur. 1) Devices must be stored where fluctuation of temperature and humidity is minimal, and must not be exposed to direct sunlight. Store at the normal temperature of 5 to 30 degrees Celsius with humidity at 40 to 60%. 2) Avoid locations where corrosive gasses are generated or where much dust accumulates. 3) Storage cases must be static proof. 4) Avoid putting weight on boxes.
Extended storage	When extended storage is necessary, Hics must be kept non-processed. When using Hics which have been stored for more than one year or under severe conditions, be sure to check that the exterior is free from flaw and other damages.
Maximum ratings	To prevent any electrical damages, use Hics within the maximum ratings. The temperaqture, current, voltage, etc. must not exceed these conditions.
Polarity	To protect Hics from destruction and deterioration due to wrong insertion, make sure of polarity in inserting leads into the board holes, conforming to the external view for the terminal arrangement.

Keep safety first in your circuit designs!

- ISAHAYA Electronics Corporation puts the maximum effort into making semiconductor products better and more reliable,but there is always the possibility that trouble may occur with them.
  Trouble with semiconductors may lead to personal injury, fire or property damage. Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (1)placement of substitutive, auxiliary circuits, (2)use of non-flammable material or (3)prevention against any malfunction or mishap.

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